

WHAT IS CLAIMED IS:

1. A conduit for use in association with an air conditioning or refrigeration system, the conduit comprising:
 - a. a first conduit portion,
 - 5 b. a second conduit portion, and
 - c. a swivel providing fluid communication between the first conduit portion and the second conduit portion, the swivel permitting rotational movement of the first conduit portion relative to the second conduit portion, the swivel constrained to prevent linear movement between the first and second portions at the swivel, and
 - 10 d. a fitting for external connection of the conduit to a pressure port of the air conditioning or refrigeration system, the fitting for fluid communication with the first conduit portion and the second conduit portion,
wherein, the conduit provides sealed fluid communication from the first conduit portion, swivel and second conduit portion to the air conditioning or
15 refrigeration system when the fitting is connected to the air conditioning or refrigeration system.
2. The conduit of claim 1, wherein the swivel is an inline swivel and the inline swivel provides fluid communication between the first conduit portion and the second conduit portions such that the first conduit portion and the second conduit portion share one fluid
20 path axis immediately adjacent the swivel, and the swivel permits relative rotation between the first conduit portion and the second conduit portion about the fluid path axis.
3. The conduit of claim 1, wherein the swivel is an inline normal swivel and the inline normal swivel provides fluid communication between the first conduit portion and the
25 second conduit portions such that the first conduit portion has a first conduit fluid path and the second conduit portion has a second conduit fluid path, and the first conduit fluid path is normal to the second conduit fluid path, and the swivel permits relative rotation of the first conduit about the first conduit fluid path and relative rotation of the second conduit portion about the first conduit fluid path.

4. The conduit of claim 1, wherein the swivel is an aligned dual normal swivel and the dual normal swivel provides fluid communication between the first conduit portion and the second conduit portion such that the first conduit portion has a first conduit fluid path and the second conduit portion has a second conduit fluid path, and the first conduit fluid path is in the same plane as the second conduit fluid path, and the swivel permits relative rotation of the first conduit and the second conduit about an axis normal to the first conduit fluid path and the second conduit fluid path.
5. The conduit of claim 1, wherein the swivel is an offset dual normal swivel and the dual normal swivel provides fluid communication between the first conduit portion and the second conduit portion such that the first conduit portion has a first conduit fluid path and the second conduit portion has a second conduit fluid path, and the first conduit fluid path and the second conduit fluid path are in non-intersecting parallel planes, and the swivel permits relative rotation of the first conduit and the second conduit about an axis normal to the first conduit fluid path and the second conduit fluid path.
6. The conduit of claim 1, wherein the swivel is an inline aligned dual normal swivel and the swivel provides fluid communication between the first conduit portion and the second conduit portion such that the first conduit portion has a first conduit fluid path and the second conduit portion has a second conduit fluid path, and the first conduit fluid path is in the same plane as the second conduit fluid path, and the swivel permits relative rotation of the first conduit about the first conduit fluid path and relative rotation of the first conduit and the second conduit about an axis normal to the first conduit fluid path and the second conduit fluid path.
7. The conduit of claim 1, wherein the swivel is a ball and socket swivel.
8. The conduit of claim 1, further comprising:
- a. a charging manifold body,
 - b. high pressure side hose,
 - c. low pressure side hose,
 - d. charging hose,
 - e. charging station, and

f. a plurality of swivels, including the swivel,

wherein a first swivel of the plurality of swivels permits relative rotation of the high pressure side hose and the charging manifold body, a second swivel of the plurality of swivels permits relative rotation of the low pressure side hose and the charging manifold body.

9. The conduit of claim 8, wherein the high pressure side hose has a high pressure fluid path and the first swivel permits relative rotation of the high pressure side hose and the charging manifold about an axis normal to the high pressure fluid path adjacent the first swivel, and the low pressure side hose has a low pressure fluid path and the second swivel permits relative rotation of the low pressure side hose and the charging manifold body about an axis normal to the low pressure fluid path adjacent the second swivel.

10. The conduit of claim 9, wherein the first swivel also permits relative rotation of the high pressure side hose and the charging manifold body about an axis inline with the high pressure fluid path adjacent the first swivel, and the second swivel permits relative rotation of the low pressure side hose and the charging manifold body about an axis inline with the low pressure fluid path adjacent the second swivel.

11. The conduit of claim 1, further comprising:

a. a charging manifold body,

b. high pressure side hose,

c. high pressure gauge,

d. low pressure side hose,

e. low pressure gauge,

f. charging hose,

g. charging station, and

h. a plurality of swivels, including the swivel,

wherein a first swivel of the plurality of swivels permits relative rotation of the high pressure gauge and the charging manifold, a second swivel of the plurality of swivels permits relative rotation of the low pressure gauge and the charging manifold.

- 5 12. The conduit of claim 11, wherein the high pressure gauge has a high pressure fluid path and the first swivel permits relative rotation of the high pressure gauge and the charging manifold about an axis normal to the high pressure fluid path adjacent the first swivel, and the low pressure gauge has a low pressure fluid path and the second swivel permits relative rotation of the low pressure gauge and the charging manifold body about an axis
10 normal to the low pressure fluid path adjacent the second swivel.
13. The conduit of claim 12, wherein the first swivel permits relative rotation of the high pressure gauge and the charging manifold body about an axis inline with the high pressure fluid path adjacent the first swivel, and the second swivel permits relative rotation of the low pressure gauge and the charging manifold body about an axis inline
15 with the low pressure fluid path adjacent the second swivel.
14. The conduit of claim 13, wherein the first swivel is a ball and socket swivel and the second swivel is a ball and socket swivel.
15. The conduit of claim 1, the first conduit portion comprises a connector for connection to a manual fluid injector, and the second conduit portion comprises a hose with a fluid
20 path in fluid communication with the fitting,
- wherein the connector has a fluid path and is in fluid communication with the swivel and, through the swivel in fluid communication with the hose and fitting, and
- wherein the swivel permits relative rotation between the connector and the hose about an axis normal to the fluid path of the hose and the fluid path of the
25 connector.
16. The conduit of claim 15, wherein the connector and the hose are offset from one another such that a component connected to the connector can pass the hose when the connector and hose are rotated relative to one another.
- 30 17. The conduit of claim 1, further comprising:

- a. a hose reel having a hose pick-up,
wherein the swivel permits relative rotational movement between a conduit component in fluid communication with the hose reel and the hose reel, such that the hose pick-up may rotate to retract and dispense hose from the hose reel.

- 5 18. The conduit of claim 1, wherein each swivel in the conduit is non-manually releasably constrained from relative movement along the fluid path of the swivel.
19. The conduit of claim 1, wherein the swivel is constrained by a connection that is made by compatible threads.
20. The conduit of claim 19, wherein the connection is manually releasable.
- 10 21. The conduit of claim 1, wherein the swivel is constrained by a permanent connection.
22. The conduit of claim 1, wherein the swivel is constrained by a connection that is constrained at all times during normal use of the swivel and any components thereof.
23. A conduit adapter comprising:
- a. a swivel,
- 15 b. a first swivel fitting,
- c. and a second swivel fitting,
wherein the swivel provides fluid communication between the first swivel fitting and the second swivel fitting, the first swivel fitting is sized to connect to an external pressure side fitting of an air conditioning or refrigeration system, the
20 second swivel fitting is sized to connect to a fitting that is itself sized to connect to an external pressure side fitting of an air conditioning or refrigeration system, and
wherein the swivel permits rotational movement of the first swivel fitting relative to the second swivel fitting, the swivel constrained to prevent linear movement between the first swivel fitting and the second swivel fitting.
- 25 24. The adapter of claim 23, wherein the swivel is constrained by a connection that is made by compatible threads.
25. The conduit of claim 24, wherein the connection is manually releasable.

26. The conduit of claim 23, wherein the swivel is constrained by a permanent connection.
27. The conduit of claim 23, wherein the swivel is constrained by a connection that is constrained at all times during normal use of the swivel and any components thereof.
28. The adapter of claim 23, wherein the first swivel fitting and the second swivel fitting are sized for different air conditioning or refrigeration systems.
29. The adapter of claim 23, wherein the first swivel fitting has a first fluid path and the second swivel fitting has a second fluid path, and the first fluid path is inline with the second fluid path.
30. The adapter of claim 23, wherein the first swivel fitting has a first fluid path and the second swivel fitting has a second fluid path, and the first fluid path is normal to the second fluid path.
31. A charging manifold for use in association with a charging station and an air conditioning or refrigeration system, the charging manifold comprising:
- a. a charging manifold body,
 - b. high pressure side port,
 - c. high pressure gauge,
 - d. low pressure sideport,
 - e. low pressure gauge,
 - f. chargingport, and
 - g. a plurality of swivels,
- wherein a first swivel of the plurality of swivels permits relative rotation of the high pressure gauge and the charging manifold, a second swivel of the plurality of swivels permits relative rotation of the low pressure gauge and the charging manifold, and
- wherein the first and second swivel are constrained to prevent linear movement between the high pressure gauge and the charging manifold, and between the low pressure gauge and the charging manifold, respectively.

32. The conduit of claim 31, wherein each swivel is constrained by a respective connection that is made by compatible threads.

33. The conduit of claim 32, wherein each connection is manually releasable.

34. The conduit of claim 31, wherein each swivel is constrained by a respective permanent connection.

35. The conduit of claim 31, wherein each swivel is constrained by a respective connection that is constrained at all times during normal use of the swivel and any components thereof.

36. A charging manifold for use in association with an air conditioning or refrigeration system, the charging manifold comprising:

- a. a charging manifold body,
- b. high pressure side port,
- c. low pressure sideport,
- d. chargingport, and

e. a plurality of swivels,

wherein a first swivel of the plurality of swivels permits relative rotation of the high pressure side port and the charging manifold body, a second swivel of the plurality of swivels permits relative rotation of the low pressure side port and the charging manifold body, and

wherein the first and second swivel are constrained to prevent linear movement between the high pressure side port and the charging manifold, and between the low pressure side port and the charging manifold, respectively.

37. The conduit of claim 36, wherein the swivel is constrained by a connection that is made by compatible threads.

38. The conduit of claim 37, wherein the connection is manually releasable.

39. The conduit of claim 36, wherein the swivel is constrained by a permanent connection. T

40. The conduit of claim 36, wherein the swivel is constrained by a connection that is constrained at all times during normal use of the swivel and any components thereof.

41. An injection hose assembly for connection between a pressurized system and an injector for injecting fluids into the pressurized system, the assembly comprising:

- a) a first fitting compatible with a fitting on the pressurized system,
- b) a second fitting compatible with the injector, the second fitting having an opening to which the injector can be connected,
- c) a substantially non-collapsing joint between the first fitting and the second fitting, and
- d) a generally tubular hose between the first fitting and the joint,

wherein the first fitting, hose, joint and second fitting are connected to provide fluid connection between the first fitting and the second fitting, and

wherein the second fitting is offset from the hose and the joint permits at least two positions of the second fitting with respect to the hose, in the first position the second fitting opening is substantially aligned with the hose directed towards the first fitting and in the second position the second fitting opening is directed at 90 degrees to the hose.

42. An injection hose assembly for connection between a pressurized system and an injector for injecting fluids into the pressurized system, the assembly comprising:

- a) a first fitting compatible with a fitting on the pressurized system,
- b) a second fitting compatible with the injector, the second fitting having an opening to which the injector can be connected,
- c) a substantially non-collapsible swivel joint between the first fitting and the second fitting, and
- d) a generally tubular hose between the first fitting and the swivel,

wherein the first fitting, hose, swivel and second fitting are connected to provide fluid connection between the first fitting and the second fitting, and

wherein the second fitting is offset from the hose and the joint permits rotation of the second fitting with respect to the hose between a first and a second position, in the first position the second fitting aperture is substantially aligned with the hose directed towards the first fitting and in the second position the second fitting opening is directed at 90 degrees to the hose.

43. The injection hose assembly of claim 42, wherein: the joint has a third position again substantially at 90 degrees to the first position, while the second fitting opening is directed in the opposite direction from the second position.

44. The injection hose assembly of claim 43, wherein: the joint also permits rotation of the second fitting to a third position again substantially at 90 degrees to the first position, while the second fitting opening is directed in the opposite direction from the second position.

45. The injection hose assembly of claim 42, wherein: the second fitting is offset from the hose by a distance sufficient to permit the hose and the injector to pass one another without bending the hose.